

# Learning from the Restoration of Wetlands on Cranberry Farmland:

## Preliminary Benefits Assessment

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### EXECUTIVE SUMMARY

**T**wo centuries of cranberry farming transformed thousands of acres of natural wetlands into artificially elevated agricultural fields in Southeastern Massachusetts. Today, scientists understand that this transformation came at a high cost to the environment. Now that the economics of the cranberry industry have made it less advantageous to farm in the region, the time is right for policies and funding that encourage farmers to consider restoration. Most recently, the US Department of Agriculture Natural Resources Conservation Services announced a plan to invest \$10 million in 20 projects that will produce hundreds of acres of protected open space and restored wetlands.

This report describes findings related to wetland restorations that have occurred over the past decade on four cranberry farms in Massachusetts. It grew out of a rich collaborative partnership between scientists, artists, restoration practitioners and conservation partners. Acting as learning laboratories the four projects have generated valuable data about the impact of restoration on the emergence of self-sustaining wetlands. The findings, many of which are described here for the first time, will help shape future projects. The report concludes with a proposal for a standard monitoring approach for new restoration sites, as well as topics for further research.

### Key findings in the report are as follows:

- **Wetland restoration of cranberry farmland contributes to climate change preparedness** by restoring stream connectivity to adjacent floodplains, marshes, and uplands, dissipating floodwater, mitigating sea level rise and coastal storm surge, and supporting animal migration.
- **Wetland restoration of cranberry farmland has a desirable long-term impact** on soil-based ecosystem functions such as long-term carbon sequestration.
- **Restoration of stream channels and wetlands creates conditions that favor microbially-driven ecosystem functions** of denitrification, thus improving water quality in comparison to actively farmed and retired but unrestored sites.
- **Microbial populations on restored wetlands** tend to become more similar to reference natural wetlands over time.
- **Wetland restoration of cranberry farmland changes the succession of plant communities** resulting in an increase in richness and abundance of wetland species over time.
- **Restoration of stream channels and elimination of barriers that form water impoundments associated with farming can lower water temperatures** thus favoring cold-water fish species, including regionally threatened brook trout.
- **Removal of water control structures and other in-stream barriers provides unrestricted passage for river herring, American eels and other fish that migrate** between the ocean and fresh water.
- **Restored stream and wetland habitats of restored cranberry farms become more complex over time**, leading to more diverse animal communities and food webs.
- **Wetland restoration of cranberry farmland often includes permanently protected open space** for public engagement, recreation, learning, and long-term stewardship.
- **Standardized monitoring across all sites**, combined with long-term studies on specific sites, will improve future restoration practice.

The report is authored by scientists at Living Observatory, a public interest learning community founded in 2011 to complement the wetland restoration at Tidmarsh Farms. Living Observatory seeks to tell the long-term story of ecological wetland restoration of cranberry farmland, and to advance scientific knowledge and public understanding of wetland ecology.



For a copy of the report or more information:  
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